

A Comparative Study on the Risk Perception of Filipino Healthcare Workers in Chosen Hospitals in Lipa City and Quezon City in Relation to the Risks and Repercussions of the COVID-19 Pandemic

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Abstract:

The spread of SARS-COV-2 virus has changed the lives of billions of people around the world. Schools and businesses have resorted to studying or working from home in order to bring about a sense of normalcy despite the current circumstances. However, frontliners are unable to work from home because they must work in hospitals every day; as such, they have the highest risk of contracting the virus. The main objective of this study is to identify the differences in the perception of healthcare workers residing in Quezon City and Lipa City regarding the risks and repercussions of COVID-19. A non-probability purposive sampling design was employed for the target respondents, following specific inclusion criteria. The respondents were composed of healthcare workers based in selected hospitals in Quezon City (Novaliches General Hospital) and Lipa City (Mary Mediatrix Hospital). Based on Raosoft, the computed total sampling size was 145 with 95% confidence level. Sixty-seven respondents were chosen from Novaliches General Hospital while 78 respondents were chosen from Mary Mediatrix Hospital. R software was used to perform the statistical analysis on the quantitative data obtained from the survey. Results obtained were objectively compared to the knowledge, precautionary behaviors, risk perceptions, and experienced repercussions of healthcare workers from Lipa and Quezon City. After analyzing the data based on the survey, it was identified that healthcare workers from Lipa City exhibited higher levels of precautionary behavior and a heightened risk perception. This can be attributed to certain environmental work factors distinctive of their city of employment, implementation of hospital mandated protocols, and their level of exposure to infected individuals.

Keywords: risk perception; repercussions; healthcare workers; COVID-19; Filipino

INTRODUCTION

The Philippines is most known for having the first case of reported death outside China, which happened on February 1, 2020. Currently, the Philippines is experiencing one of the worst cases of COVID-19 outbreak, as it now ranks first in Southeast Asia in terms of having the highest number of confirmed cases.

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News about the pandemic has reached the media since December 2019. However, the country made no concrete initiatives in controlling the spread of the virus until it had its first reported case on January 30, 2020. Since then, the government started to implement regulations to mitigate the spread of the disease.

The National Capital Region (NCR) is the capital region of the Philippines, which comprises 16 cities. According to the official census results of the Philippine Statistics Authority (PSA) (2015), the largest and most populous among the 16 cities is Quezon City, with a population of 2,936,116 in 2015. On March 13, 2020, City Mayor Joy Belmonte declared a state of calamity due to the presence of six confirmed COVID-19 cases in the city. Despite the resolution for a quick response, the implementation of Enhanced Community Quarantine (ECQ) by the President, prohibiting mass gatherings, closing private establishments, along with the city's executive order prohibiting the sale, purchase, and consumption of alcoholic beverages in public places, Quezon City still claimed the title of having the most number of cases in Metro Manila with over 557 cases by April 7, 2020 and most recently with 46,842 cases as of March 11, 2021.

Batangas on the other hand is a first class province in the CALABARZON region. CALABARZON region is also known as Region IV-A, comprising five provinces and 20 cities. According to statistics reported by the Department of Health (DOH) (n.d.), CALABARZON is the second most affected region after NCR, with a total of 104,607 COVID-19 cases as of March 16, 2021. Among the three cities and 31 municipalities of the province of Batangas, Lipa City was found to have the largest population size, reaching a total of 332,386 in 2015, which is about 12.3% of the total provincial population (PSA, 2015). According to one report, the first two confirmed cases of COVID-19 in the province of Batangas came from Batangas City, which was reported on March 13 2020. The third case was a 64-year-old woman returning from Italy while the fourth case came from a man in Lipa City.

The two cities, namely Quezon City and Lipa City were chosen as the target population for this study because these two cities are very similar in nature and yet very different in terms of their number of cases. Both cities have the highest populations in their respective regions, NCR and CALABARZON. These two previously mentioned regions were reported to have the highest number of confirmed cases in the Philippines with NCR ranking first and CALABARZON ranking second. As such, Quezon City has been reported to have the highest number of cases in NCR with a total of 16,416 reported cases per million (48,198 total cases). On the other hand, this differs greatly from Lipa City even though it is the most populous city in the CALABARZON region. Lipa City only has a total of 5,945 reported cases per million (1,976 total cases), ranking 49th on the list of highest number of infected individuals per city. This brings about an interesting look as to how these two highly populated cities have such dissimilar number of COVID-19 cases.

Healthcare workers, in particular, were selected for this research because they are the population that is mostly affected by the ongoing pandemic. They are exposed daily to COVID-infected patients and specimens. For this reason, healthworkers are at a considerable risk to contract the virus. Hence, the researchers perceive that it is essential to gather and analyze their perceptions on the risks and repercussions of doing their job.

Risk perception is said to be the perception of the public in relation to potential dangers that may arise from certain situations. Filipinos are said to have low levels of trust in the government, yet have high levels of perceived risk against the COVID-19 disease (Nicomedes & Avila, 2020). This can be seen by the initial response of the Filipinos when ECQ was first implemented. Panic buying of goods, such as toilet paper and canned goods, is a notable example of disarray in the country. With regard to each city, a number of differing factors have affected the public perception on how COVID-19 is seen. Factors such as the number of cases in their respective cities and the different news articles released in different social media platforms are constituents that may influence how the public perceives the virus. In this case, the high number of cases in Quezon City compared to Lipa City may correspond to a differing perspective regarding risk perception on the pandemic. This paper aims to compare the differences in the perception of healthcare workers residing in Quezon City and Lipa City on the risks and repercussions of COVID-19.

METHODOLOGY

Research Design

This study utilized a non-experimental, quantitative, and descriptive research approach for the comparison and contrast of the perception of healthcare workers of Quezon City and Lipa City on COVID-19 risks and experienced repercussions.

Instrumentation

A five-part digital survey was developed and adapted based on the study Ayandele et al. (2020) namely: *demographics, knowledge, precautionary behavior, risk perception, and repercussions*. The survey used multiple choice questions and the Likert scale.

Sampling

A non-probability purposive sampling design was used for this study. Respondents included healthcare workers from Lipa and Quezon City, comprising physicians, nurses, medical technologists, and pharmacists. To obtain the number of appropriate respondents, the researchers objectively chose two hospitals based in each respective city with similar healthcare worker populations and classification, particularly, Mary Mediatrix Hospital (MMH) and Novaliches General Hospital (NGH). With a healthcare worker population of 97 in MMH and 80 in NGH, and given a 95% confidence interval and 5% margin of error, the minimum sample size was determined at 78 and 67 healthcare workers for MMH and NGH, respectively.

Statistical Analysis

The researchers utilized the R software to perform statistical analysis for the quantitative data obtained from the adapted survey. R software is a programming language and environment for statistical computing and graphics developed by John Chambers. The tests performed on the study include: Pearson’s chi-squared test, Fisher’s exact test of independence and Wilcoxon rank sum test. The chi-square test for independence, also called as Pearson’s chi-square test or the chi-square test for association, was used to discover whether there was an existing relationship between two categorical variables or not. Fisher’s exact test of independence was used in conjunction with the Pearson’s chi-square test in order to verify whether the proportion of one variable is distinct compared to the other variables. Wilcoxon rank sum test was applied to compare the total score (sum of scores on each of the questions) and the segregated scores on each of the questions of the respondents from Quezon City and Lipa City. In all these three tests, a calculated p-value of less than or equal to 0.05 was considered to be statistically significant.

RESULTS

Table 1 shows the differences in precautionary behavior and preventive actions practiced by healthcare workers from Lipa compared to those from Quezon City.

Table 1. Comparison of Precautionary Behavior between Healthcare Workers in Lipa and Quezon City

Question Prompt	Lipa City Frequency (Percentage)	Quezon City Frequency (Percentage)	p value
Q1. It really bothers me when people sneeze without covering their mouths			0.0656
Not at all	4 -2.76%	2 -1.38%	

Not too likely	0 0.00%	0 0.00%	
Moderately likely	1 -0.69%	1 -0.69%	
Very likely	11 -7.59%	21 -14.48%	
Extremely likely	62 -42.76%	43 -29.66%	
Total	78 -53.79%	67 -46.21%	
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Q2. I prefer to use hand sanitizer or wash my hands after shaking someone's hand			
Not at all	1 -0.69%	0 0.00%	
Not too likely	0 0.00%	0 0.00%	
Moderately likely	0 0.00%	0 0.00%	
Very likely	14 -9.66%	19 -13.10%	
Extremely likely	63 -43.45%	48 -33.10%	
Total	78 -53.79%	67 -46.21%	
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Q3. I avoid touching door handles and staircase railing at public locations			
Not at all	1 -0.69%	0 0	
Not too likely	1 -0.69%	0 0	
Moderately likely	6 -4.14%	8 -5.52%	
Very likely	14 -9.66%	22 -15.77%	

Extremely likely	56 (38.62%)	37	-25.52%
Total	78	67	-53.79%
			-46.21%
Q4. I dislike wearing face masks because it looks somehow uncomfortable.			<0.05
Not at all	68	42	-46.90%
Not too likely	6	17	-4.14%
Moderately likely	3	6	-2.07%
Very likely	0	2	0.00%
Extremely likely	1	0	-0.69%
Total	78	67	-53.79%
			-46.21%
Q5. I want people's temperature to be taken before they enter public places			0.4394
Not at all	1	0	-0.69%
Not too likely	2	1	-1.38%
Moderately likely	10	4	-6.90%
Very likely	18 (12.41%)	30	-20.69%
Extremely likely	47 (32.41%)	32	-22.07%
Total	78	67	-53.79%
			-46.21%
Q6. I don't mind going to very crowded places			<0.05

Not at all	64 -44.14%	33 -22.76%	
Not too likely	6 -4.14%	12 -8.28%	
Moderately likely	3 -2.07%	10 -6.90%	
Very likely	4 -2.76%	7 -4.83%	
Extremely likely	1 -0.69%	5 -3.45%	
Total	78 -53.79%	67 -46.21%	
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Q7. I would self-isolate myself at home if needed			0.0649
Not at all	2 -1.38%	1 -0.69%	
Not too likely	0 0.00%	1 -0.69%	
Moderately likely	0 0.00%	1 -0.69%	
Very likely	14 -9.66%	20 -13.79%	
Extremely likely	62 -42.76%	44 -30.34%	
Total	78 -53.79%	67 -46.21%	
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Q8. I frequently use hand sanitizer after shaking someone's hand			0.8391
Not at all	2 -1.38%	0 0	
Not too likely	4 -2.76%	1 -0.69%	
Moderately likely	3 -2.07%	5 -3.45%	

Very likely	24 -16.55%	25 -17.24%	
Extremely likely	45 -31.03%	36 -24.83%	
Total	78 -53.79%	67 -46.21%	
Q9. I avoid going to public places			<0.05
Not at all	2 -1.38%	1 -0.69%	
Not too likely	0 0%	0 0%	
Moderately likely	3 -2.07%	12 -8.28%	
Very likely	26 -17.93%	31 -21.38%	
Extremely likely	47 -32.41%	23 -15.86%	
Total	78 -53.79%	67 -46.21%	
Q10. I have changed the way I live my life because of the Coronavirus			0.0932
Not at all	0 0%	0 0%	
Not too likely	0 0%	0 0%	
Moderately likely	0 0%	3 -2.07%	
Very likely	22 -15.17%	24 -16.55%	
Extremely likely	56 -38.62%	40 -27.59%	
Total	78 -53.79%	67 -46.21%	

When it comes to their attitudes toward unethical sneezing and coughing, a majority of the respondents from both cities answered “extremely likely” with Lipa City having 42.76% and Quezon City having 29.66%. Thus, showcasing that healthcare workers from both cities tend to be bothered when people around them sneeze without covering their mouths.

As for hand hygiene preference, a majority of the respondents answered “extremely likely” in using hand sanitizer or washing their hands after shaking someone else’s hand, garnering 43.45% and 33.10% for Lipa City and Quezon City, respectively.

With regard to avoidance of frequently touched surfaces, a majority of the respondents from both cities answered “extremely likely”, which means that they have practiced avoiding contact with door handles and staircase railings in public locations, obtaining a total of 38.62% and 25.52% for Lipa City and Quezon City, respectively.

Regarding the donning of facemasks, a majority of the respondents from both cities answered “not at all”, garnering a total of 46.90% for Lipa City and 28.97% for Quezon City. This implies that the respondents do not dislike wearing face masks for their own comfortability. However, it can be seen that there is a significant variability in the distribution of responses particularly in Quezon City which obtained 11.72% for “not too likely,” 4.14% for “moderately likely” and 1.38% for “very likely” as opposed to the results from Lipa City. With the utilization of Wilcoxon Rank Sum Tests, a p-value of 0.0008588 was obtained, which showed that there is sufficient evidence to say that the median score of those working in Quezon City is different from the median score of those working in Lipa City.

For temperature screening in public places, a majority of respondents from both cities answered “extremely likely” in agreeing to temperature checking before entering public places. This garnered a total of 32.41% of responses from Lipa City and 22.07% from Quezon City. Respondents were also asked about the frequency of going to crowded locations, where a majority of the respondents from both cities answered “not at all”, garnering a total of 44.14% for Lipa City and 22.76% for Quezon City. It can be deduced that these respondents are cautious of crowded places. However, it may also be seen that there is a significant variability in the distribution of responses, particularly in Quezon City, with 8.28% of answers for “not too likely”, 6.90% for “moderately likely,” 4.83% for “very likely” and 3.45% for “extremely likely” as opposed to the results from Lipa City. With the utilization of Wilcoxon Rank Sum Tests, a p-value of <0.00001 was obtained (see Table 10.2). Since the p-value is less than 0.05, at 0.05 level of significance, there is sufficient evidence to say that the median score of those working from Quezon City is different from the median score of those working from Lipa City.

When respondents were asked if they would self-isolate at home, a majority of the respondents from both cities answered “extremely likely”, indicating that they are willing to self-isolate at home if necessary. This garnered a percentage of 42.76% for Lipa City and 30.34% for Quezon City.

When the frequency of hand hygiene was inquired, a majority of the respondents from both cities answered “extremely likely” in agreeing to the frequent use of hand sanitizer after shaking someone’s hand or having close contact with another person. This garnered a total of 31.03% of responses from Lipa City and 24.83% from Quezon City.

For the ninth question, a majority of the respondents from both cities answered “extremely likely”, garnering a total of 32.41% for Lipa City and 15.86% for Quezon City. It can be deduced that a majority of the respondents avoid going to public places. However, it may also be seen that there is a significant variability in the distribution of responses particularly in Quezon City with 21.38% responses for “very likely,” 8.28% for “moderately likely” and 0.69% for “not at all” as opposed to the results from Lipa City. With the utilization of Wilcoxon Rank Sum Tests, a p-value of 0.0009389 was obtained (see Table 10.2). Since the p-value is less than 0.05, at a 0.05 level of significance, there is sufficient evidence to say that the median score of those working in Quezon City is different from the median score of those working in Lipa City.

Finally, when questioned about their avoidance of public places, a majority of the respondents from both Lipa City and Quezon City answered “extremely likely”, with a percentage of 38.62% and 27.59%, respectively, indicating that the healthcare workers from both cities have changed their lifestyle due to the COVID-19 pandemic.

Table 2 presents nine questions that focused on the risk perception of healthcare workers toward the coronavirus. A Likert scale of 1 to 5 was used for the choices, with 1 being impossible and 5 as highly possible.

For their perceived risk relative to age, a majority of the respondents from Lipa City answered “moderate,” garnering 24.83%. Quezon City healthcare workers, on the other hand, mostly answered “very high” with 15.17% of the responses. This means that the healthcare workers from Lipa City believe that their risk of acquiring the virus is just moderate compared to healthcare workers from Quezon City who believe that their risk of acquiring the virus is very high.

When asked regarding the likelihood of transmission in Lipa City, a majority of the respondents from Lipa City answered “very high” and “moderate”, having 23.45% and 16.55%, respectively. In contrast to Quezon City, “very high” and “highly possible,” both garnered a score of 17.93% .

For the gravity of COVID-19 in their respective hospitals of employment, a majority of the respondents from Lipa City answered “moderate,” garnering 26.21% while a majority of the respondents from Quezon City answered “very high”, obtaining 19.31%. Thus, healthcare workers currently working in MMH moderately sees Coronavirus as a threat to their health, contrary to healthcare workers in NGH who highly sees the virus as a threat. With the utilization of the Wilcoxon Rank Sum Tests, a p-value of 0.02493 was obtained. Since the p-value is less than 0.05, at a 0.05 level of significance, there is sufficient evidence to say that the median score of those working in Quezon City is different from the median score of those working in Lipa City.

When it comes to the individual probability of contracting the virus, a significant difference between the risk perception of respondents on the possibility of contracting the coronavirus was found by using the Wilcoxon Rank Sum test. Majority of the healthcare workers from Lipa City identified their likelihood of contracting the virus as “very high” at 24.83% while those from Quezon City predominantly answered “moderate”. A p-value of less than 0.05 is identified, indicating a significant difference between the median scores of the two populations of interest. Hence, the risk perception of healthcare workers from Quezon City on contracting the coronavirus is notably less than those from Lipa City.

When asked regarding the likelihood of transmission in Lipa City, both cities had the highest percentage for “highly possible”, with Lipa City garnering 29.66% and Quezon City obtaining 20.69%. The data shows that the respondents from both cities believe that people in Quezon City have a very high chance of contracting the coronavirus.

Table 2. Comparison of Risk Perception between Healthcare Workers in Lipa and Quezon City

Question Prompt	Lipa City Frequency (Percentage)	Quezon City Frequency (Percentage)	p value
Q1. Compared to most people of my age, my risk of getting coronavirus is:			0.2967
Impossible	0 0.00%	0 0.00%	
Very Low	0 0.00%	3 -2.07%	

Moderate	36 -24.93%	21 -14.48%	
Very High	23 -15.86%	22 -15.17%	
Highly Possible	19 -13.10%	21 -14.48%	
Total	78 -53.79%	67 -46.21%	
Q2. How likely do you think people in Lipa City are to contract the coronavirus?			0.2967
Impossible	0 0.00%	0 0.00%	
Very Low	0 0.00%	0 0.00%	
Moderate	24 -16.55%	15 -10.34%	
Very High	34 -23.45%	26 (17.93%)	
Highly Possible	20 -13.79%	26 -17.93%	
Total	78 -53.79%	67 -46.21%	
Q3. In your opinion, how much of a threat does the coronavirus pandemic pose to you based on the hospital you are working in?			0.0249
Impossible	0 0.00%	1 -0.69%	
Very Low	3 -2.07%	3 -2.07%	
Moderate	38 -26.21%	18 -12.41%	
Very High	26 -17.93%	28 -19.31%	
Highly Possible	11 -7.59%	17 -11.72%	

Total	78	67	
	-53.79%	-46.21%	
Q4. How likely do you think you will contract the coronavirus?			0.0002
Impossible	1	1	
	-0.69%	-0.69%	
Very Low	4	17	
	-2.76%	-11.72%	
Moderate	25	29	
	-17.24%	-20.00%	
Very High	36	11	
	-24.83%	-24.83%	
Highly Possible	12	9	
	-8.28%	-8.28%	
Total	78	67	
	-53.79%	-53.79%	
Q5. How likely do you think people in Quezon City are to contract the coronavirus?			0.1795
Impossible	2	0	
	-1.38%	0.00%	
Very Low	1	3	
	-0.69%	-2.07%	
Moderate	5	8	
	-3.45%	-5.52%	
Very High	27	26	
	-18.62%	-17.93%	
Highly Possible	43	30	
	-29.66%	-20.69%	
Total	78	67	
	-53.79%	-46.21%	
Q6. How likely do you think people in your hometown are to contract the coronavirus?			0.0337
Impossible	1	0	
	-0.69%	0.00%	
Very Low	12	8	
	-8.28%	-5.52%	

Moderate	30 -20.69%	19 -13.10%	
Very High	26 -17.93%	23 -15.86%	
Highly Possible	9 -6.21%	17 -11.72%	
Total	78 -53.79%	67 -46.21%	
<hr/>			0.1862
Q7. How worried are you about contracting the Coronavirus?			
Impossible	0 0.00%	0 0.00%	
Very Low	5 -3.45%	4 -2.76%	
Moderate	18 -12.41%	8 -5.52%	
Very High	27 -18.62%	26 -17.93%	
Highly Possible	28 -19.31%	29 -20.00%	
Total	78 -53.79%	67 -46.21%	
<hr/>			0.7571
Q8. How likely do you think you would meet someone who is infected with the coronavirus?			
Impossible	2 -1.38%	5 -3.45%	
Very Low	4 -2.76%	3 -2.07%	
Moderate	18 -12.41%	11 -7.59%	
Very High	35 -24.14%	29 -20.00%	
Highly Possible	19 -13.10%	19 -13.10%	

Total	78	67	
	-53.79%	-46.21%	
			0.9485
Q9. How worried are you that your family members or friends might be infected with the coronavirus?			
Impossible	1	1	
	-0.69%	-0.69%	
Very Low	7	0	
	-4.83%	0.00%	
Moderate	10	12	
	-6.90%	-8.28%	
Very High	20	22	
	-13.79%	-15.17%	
Highly Possible	40	32	
	-27.59%	-22.07%	
Total	78	67	
	-53.79%	-46.21%	

For their perceived risk of transmission in their hometowns, majority of the respondents answered “moderate” for Lipa City and “very high” for Quezon City, garnering a percentage of 20.69% and 13.10%, respectively. With the utilization of Wilcoxon Rank Sum Tests, a p-value of 0.03373 was obtained. Since the p-value is less than 0.05, at a 0.05 level of significance, there is a significant difference between the median scores of the two groups. Hence, the risk perception of contracting the virus in the healthcare workers’ respective hometowns in Lipa City is notably less than those in Quezon City.

Anxiety of infection revealed that respondents from both cities answered “highly possible”, garnering the highest percentage of 19.31% and 20.00% for Lipa City and Quezon City, respectively. The data also showed that healthcare workers from both cities are extremely worried of contracting coronavirus.

For the odds of coming in contact with an infected individual, respondents from both cities answered “very high”, obtaining the highest percentage of 24.14% and 20.00% for Lipa City and Quezon City, respectively. The data showed that healthcare workers from both cities think that there is a very high chance for them to meet a person infected with coronavirus.

Finally respondents were inquired about the possible infection of persons of concern, where both cities had the highest percentage for “highly possible”, with Lipa having 27.59% and Quezon City garnering 22.07%. It can be deduced that healthcare workers from both cities are extremely worried that their family members or friends may contract coronavirus.

DISCUSSION

The COVID-19 pandemic has undeniably changed the global landscape of healthcare. Currently, the Philippines continues to struggle with mitigating the detrimental effects of the virus, and has consequently placed a heavy burden on the shoulders of healthcare workers nationwide. Infection control measures are a critical factor in managing COVID-19 and protecting healthcare workers at the frontline. The Centers for Disease Control and Prevention (CDC) recently released the Interim U.S. Guidance for Risk Assessment and

Work Restrictions for Healthcare Personnel with Potential Exposure to SARS-CoV-2. This was intended to assist the assessment of risk and application of work restrictions for asymptomatic healthcare personnel (HCP) with potential exposure to patients, visitors or other HCPs with confirmed SARS-CoV-2 infections (CDC, 2021). Locally, there have been no guidelines initiated by the local government units which objectively aimed to prevent the exposure of healthcare workers in occupational settings. In fact, Department Memorandum No. 2020-0220 released by the DOH did not require asymptomatic personnel to be tested prior to returning to work. This leaves healthcare workers to resort to their own means to safeguard their health. The results of the adapted survey measure the degree of knowledge, precautionary behavior, and perception on risks and repercussions of healthcare workers working in Lipa City and Quezon City.

Sources of Information

The results obtained from this section do not show particular variability in the responses from the healthcare workers working in Lipa or Quezon City. The most frequent source of information regarding the human coronavirus among respondents from Lipa and Quezon City is mass media, both at 47.59%. Mass media fall under a variety of modalities including television, radio, and newspapers (Potter, 2013). The exposure of healthcare workers to mass media is expected, since it is the most prevalent form of information dissemination intended to reach a mass audience (Juvvignunta, 2021). The internet and colleagues of the respondents are the subsequent prevalent sources of information based on percentage distribution. A Pearson's Chi-squared test was performed in order to determine if a particular source of information is distinct to a particular city. The resulting p-value was greater than ($>$) 0.05, indicating that there is no significant association in the sources of information and modes of communication between Lipa and Quezon City. Additionally, one respondent from Lipa City and three respondents from Quezon City stated other sources of information which did not belong to any of the options. To determine if these unique sources were of particular significance, Fisher's exact test was performed. The ensuing p-value also yielded a value greater than ($>$) 0.05, suggesting that these sources are not associated or independent of each other.

Risk Perception

In order to get a sense of the perception of the respondents, nine questions were included in the survey under the section "risk perception" in order to gain an understanding of the perceived risk on contracting the virus. After performing the Wilcoxon Rank Sum Test, which has a goal of comparing the summation of the scores in each question and the individual scores of each question of the respondents, three out of the nine questions were deemed significant due to the fact that they have a p-value below 0.05.

Quezon City has a total of 46,842 confirmed cases while Lipa City has a total of 1,909 confirmed cases. This has a noticeable effect on the perception of the healthcare workers working in each hospital. Transmission within the hospital is highly possible considering the nature of how the mechanism of the virus works. According to Gan et al. (2003), 41% of the 238 total (Severe Acute Respiratory Syndrome) SARS cases in Singapore were a result of a transmission from patient to doctor. This shows the high likelihood of doctors possibly contracting the virus from patients who are afflicted with the virus. This may also be influenced by certain factors, such as the precautionary measures taken and the amount of patients dealt with on a day-to-day basis. The higher volume of patients physicians deal with increases the chances of physicians to contract the virus due to the fact that they are in close contact with COVID-19-afflicted patients for a longer period of time.

Novaliches General Hospital is also a tertiary level hospital, but only deals with asymptomatic to mild cases of SARS-CoV-2 infections, and is only responsible for triaging recently infected individuals. As stated in the article Rickman et al. (2021) a large number of their cases originated from nosocomial infections, not only from patient to patient, but patient to doctor transmissions as well. This is because London Teaching Hospital admitted a high number of COVID-afflicted patients alongside non-COVID-afflicted patients, resulting in transmission from infected patients to the rest of those in the hospital. This is significant because MMH also admits a high number of COVID-afflicted patients, which increases the risk of contracting the virus to other patients and healthcare workers alike.

The last question that exhibited significance was about how likely people in their hometowns feel when it comes to contracting coronavirus. The response garnered the highest frequency for those in Lipa City who answered “moderate” with the next highest response being “very high.” On the other hand, Quezon City had most of its respondents selecting “very high” with the second highest number of respondents selecting “moderate.” This is similar to that of the first significant question mentioned earlier in which the high number of confirmed cases influenced the perception of people on how likely they could contract the virus from the hospital. Aside from that, the researchers also discovered a correlation in the population of their hometown city and their response to the aforementioned question. Most of the respondents’ current residences happen to be the same city where they are employed, implying that there was only a need to examine the current state of Lipa City and Quezon City. Lipa City has a low number of confirmed cases than Quezon City, which may be a factor as to why the respondents from Lipa City are less wary of those from their hometown contracting the virus. Another factor may be the population density of each city. Even though both cities are regarded as the most populated cities of their respective regions, Quezon City has a significantly higher population than Lipa City; hence, decreasing the chances of coming into contact with someone who has contracted the virus. According to Kodera et al. (2020), a correlation was observed between cases per million and population density as well as confirmed deaths, indicating that population density should be deemed a factor with regard to the number of cases and deaths in a city.

Precautionary Behavior

Precautionary behavior focuses primarily on the preventive actions done by a person against a prevailing problem. In this case, the researchers analyzed the precautionary measures done by the healthcare workers from both cities and compared and contrasted them with each other to see if there were any significant similarities and/or differences. When the Wilcoxon Rank Sum test was performed on the results from precautionary behavior, three out of ten questions appeared to be significant, since they all had a p-value of less than 0.05.

Overall, the obtained results indicated that healthcare workers currently working in MMH in Lipa City and NGH in Quezon City showed a relatively high precautionary behavior score. Some of these behaviors particularly identified in the study include: the frequent use of hand sanitizer or handwashing, especially after coming in contact with other individuals; avoiding the act of touching public utilities, such as door handles and staircase railings; compliance to temperature checks in public areas; and voluntarily isolating oneself if necessary. The respondents from both cities who prefer to use hand sanitizer or wash their hands after coming in contact with someone else, resulted in a total of 99.31% while those who frequently disinfect their hands resulted in a total of 89.65%. According to CDC (2020), handwashing with soap for a minimum of 20 seconds or using alcohol-based hand sanitizers is the first line of defense in preventing the spread of COVID-19 infection. The high percentage of healthcare workers that commit to the frequent disinfection of hands may be attributed to the fact that the healthcare workers from both cities are knowledgeable of the benefits of performing this precautionary action.

When the healthcare workers were asked regarding their perceived risk of going to crowded places, data revealed that respondents from Quezon City were less cautious of going to such places compared to Lipa City participants. Although respondents from both cities had the highest percentage who answered “not at all”, participants from the two cities had varied answers from the other responses. Respondents from Quezon City that answered from “not too likely” to “extremely likely” were all greater in percentage in each scale compared to Lipa City participants. According to Von Seidlein (2020), an environment that facilitates crowding increases exposure and transmissibility of COVID-19 as evidenced by outbreaks in both hot-humid climates and cool-dry places such as dormitories in Singapore and the United States prisons, respectively. Therefore, people should know the risks of going to such places. However, the reason why healthcare workers from Quezon City are less cautious of going to crowded places is that they are less fearful of the virus compared to the respondents from Lipa City. According to Mertens (2020), insufficient fear may result in harming individuals and society as a whole either due to people ignoring government measures that target to slow the spread of the virus or reckless policies that overlook the risks. Hence, the assumption about the fear of Quezon City respondents is further supported by the fact that when healthcare workers from both cities were asked about

how worried they were of contracting the virus, there were more respondents from Quezon City that were less worried of contracting the virus compared to those from Lipa City.

When healthcare workers from both cities were asked about their perceived risk on avoiding to go to public places, results appeared to be similar from when they were asked about their opinion on going to crowded places. Healthcare workers from Lipa City had the highest percentage of respondents that avoid going to public places. However, from the range of “very likely” to “moderately likely,” respondents from Quezon City had a higher percentage in both of these two scales. This implies that healthcare workers from Quezon City are more likely to go to public places compared to those from Lipa City. In conjunction with the discussion from the previous paragraph, the reason for why respondents from Quezon City are more likely to go to public places may still be attributed to the fact that they are less fearful of the virus compared to healthcare workers from Lipa City.

Knowledge

Majority of the respondents from both Lipa City and Quezon City exhibited sufficient knowledge in regard to the origin, modes of transmission, preventive measures, indicative symptoms, and the Baltimore classification of SARS-CoV-2. This reflects a quality educational background and preliminary preparedness among healthcare workers in both cities. This is also aligned with the study performed by Saqlain et al. (2020), where findings showed that 93.2% of healthcare professionals (n=386) who took part in a similar survey had good knowledge on COVID-19.

In terms of the origin of the novel coronavirus, 33.10% and 29.66% of respondents from Lipa and Quezon City, respectively, identified the source of the virus to be a severe illness transmitted to humans from wild animals. However, 11.72% of respondents from Lipa City supported the erroneous conspiracy theory belief that it is a biological weapon designed by the government of China while 6.90% of respondents from Quezon City shared similar sentiments but directed against the United States. Related studies conducted by Swami et al. (2013) and van Prooijen (2018) explained that erroneous conspiracy theory beliefs predominantly advance in individuals who have underlying conspiratorial reasoning styles and psychopathological traits which are evident under stressful external events, such as the COVID-19 pandemic that the world is currently experiencing.

Responses from both cities agreed regarding the most prevalent cause of transmission of the virus, which was identified as contact with airborne droplets via breathing, sneezing, or coughing at a combined rate of 97.93%. Additionally, 34.48% of respondents from Lipa City and 31.03% of respondents from Quezon City deemed physical contact with contaminated objects or surfaces is a potential source of transmission. Although uncommon, it has been proven that SARS-CoV-2 can remain infectious on inanimate surfaces at room temperature up to nine days (Lee et al., 2020). This further reinforces the extensive knowledge of the respondents.

Results in regard to the preventive knowledge of respondents displayed distinctly congruent responses from both cities. All respondents collectively answered that regular hand washing and social distancing as well as disinfecting contaminated surfaces were the most effective methods for preventing the spread of the virus at 89.66% and 10.35%, respectively. This is in correlation with a study by Armando et al. (2020), which identified the frequency of hand hygiene and the use of alcohol-based hand rubs were positively correlated with the dynamics of the COVID-19 pandemic and the nursing of COVID-19 patients.

This congruence is further observed in the determination of the most significant symptoms of COVID-19 among individuals deemed by healthcare workers in Lipa and Quezon City. The respondents from Lipa City and Quezon City respectively and predominantly identified cough (47.59%, 42.76%), fever (51.72%, 40.00%), and shortness of breath (46.21%, 40.00%) as significant COVID-19 symptoms. These results further strengthen the degree of knowledge of the respondents.

The respondents completely agreed when questioned about the mortality rate of SARS-CoV-2. A hundred percent of all respondents concluded that it is definitely possible to die of human coronavirus, regardless of

their city of employment. This can be attributed to their collective experiences and perceived barriers regarding their safety, such as the lack of availability and accessibility to personal protective equipment (PPEs) and pre-existing comorbidities (Moorthy & Sankar, 2020).

Lastly, respondents were asked to identify the correct genomic origin of the human coronavirus according to its Baltimore classification. A large number of respondents accurately identified as Group IV of the Baltimore classification with 31.03% of healthcare workers from Lipa City and 24.83% from Quezon City. A total of 22.76% of respondents from Lipa City and 21.38% from Quezon City were not able to identify the correct answer. Since there were a number of healthcare workers who participated in this research, the difference between educational background and expertise may account for incorrect answers. A study initiated by Sarell, Cohen, and Kahan (2002) revealed that there is sufficient evidence that physicians and nurses have the differing degree of knowledge regarding disease processes and courses of treatment. An extensive medical background and experience may be some of the underlying factors influencing the degree of knowledge among healthcare workers of either Lipa or Quezon City.

Repercussions

The actions taken and perceived repercussions of healthcare workers from Lipa City and Quezon City were tabulated, identifying the frequency distribution of their responses.

Actions taken by the healthcare workers from the cities of interest displayed variable responses since the respondents were permitted to select multiple answers. Among the 19 options, the most common option taken by Lipa City and Quezon City respondents in response to the pandemic was practicing hand hygiene at 49.66% and 41.38%, respectively. This is in correlation with a study by Huang et al. (2020) where an increase of 13.73% in hand hygiene rates was observed during the COVID-19 pandemic. Furthermore, the study claimed that healthcare workers modified their behaviors to face the risk propensity of the pandemic, which is also reflected on the respondents from both cities. Additionally, the prevalence of these practices may be attributed to an emotional response experienced by the healthcare workers. Apisarnthanarak (2020) noted that most healthcare professionals were overwhelmed with fear and anxiety during the COVID-19 pandemic. Although, the study also indicated that these emotions resulted in an increase in prevention practices. It is also interesting to note that a 10% difference or more in percentage distribution was respectively found in the responses of healthcare workers working in Lipa City and Quezon City: “cancellation of dental appointments” (20.69%, 8.97%); “avoidance of high-risk individuals” (41.38%, 26.21%); and “observance of social distancing” (37.93%, 25.52%). These results signify that healthcare workers from Lipa are more apprehensive with the repercussions of the virus than those from Quezon City. This is also in correlation with a study published by Cliff, Morlock, and Curtis (2012), which evaluated preparedness and risk perception among the personnel of rural hospitals in the United States. The results indicated that rural hospitals that were moderately prepared (78%), however, had scored lower in preparedness for surge capacity (64%). This reflects the more cautious attitude projected by respondents from Lipa City, since they perceive that they have inadequate facilities in the event of a surge in COVID-19 cases.

The respondents were then questioned regarding their idea toward potential unemployment due to the repercussions of the pandemic. According to Piza, Edillon, and Del Mundo (2016), unemployment may stem from a sudden shock affecting one or more sectors or changes at an individual level that affect a worker's ability to work. The results indicated that a majority of the healthcare workers were optimistic regarding their employment status within 30 to 90 days into the future. This may be attributed to the essentiality of their work or position in the hospital. Notably, seven respondents from Lipa City responded “not too likely” when asked about their employment three months from answering the survey. Mvelase (2002) found that a majority of individuals situated in rural areas often migrate to urban areas for work, and often do not return. This may be the case for the seven respondents in Lipa City who may be considering to migrate to a more urbanized region in the country.

In terms of experienced repercussions, healthcare workers and their households in Lipa City and Quezon City endured similar situations. Most of the respondents from both cities claimed to have worked less hours than usual, garnering 27.59% of responses from Lipa City and 20.00% from Quezon City. Interestingly, 21.98% of Lipa City participants and 18.62% of Quezon City respondents stated that they received lower wages than usual. This raises implementation concerns of Administrative Order No. 26 signed by President Duterte on March 23, 2020, which indicates that healthcare workers in both public and private sectors are to be granted COVID-19 hazard pay. The Alliance of Healthcare Workers, however, expressed that the COVID-19 hazard pay is applied to the number of days the employee works. Hence, the reduced salaries of healthcare workers is potentially related to their decreased work hours, which may be due to the implementation of COVID-19 protocols requiring some institutions to work under a skeletal workforce as stated in the Workplace Handbook on COVID-19 Management and Prevention released by the DOH in September 2020.

Coping strategies among healthcare workers of Lipa City and Quezon City were none contrasting. Majority of the respondents did not initiate any coping strategies included in the options. The most common action done by healthcare workers from both cities of interest was working in an additional job, whether part-time, casual, or from home, garnering a combined percentage of 29.65% of the total respondents. This may be linked to their previous response regarding receiving lesser income than usual. This is a source of concern, since holding multiple jobs may increase fatigue among healthcare workers. In a study by Marucci-Wellman et al. (2014), healthcare workers holding multiple jobs may result in an increased rate of miscalculations or work-related injuries.

Lastly, the respondents were asked regarding their compensatory actions in consequence to the experienced repercussions caused by the pandemic. While a large proportion of respondents did not take additional compensatory measures, the most frequent response for both cities was starting a small business. Although the nature of their business was not specified, a study performed by Chang and Meyerhoefer (2020) indicated that online business have been increasing at a steady rate due to its convenience and practicality during the COVID-19 pandemic. Different compensatory actions were also observed where a higher percentage of healthcare workers from Lipa City resorted to take loans (9.66%) while healthcare workers from Quezon City reported to receive support from their local government (11.72%). This highlights the variability of the provisions of local government units, depending on the region. Hale et al. (2020) stated that different government responses are observed across the COVID-19 period. Their study posited that one measure of interest for this variability in responses was the response-risk ratio, which compares the government's response to the risk it faces. Since the COVID-19 cases in Quezon City are significantly higher compared to Lipa City, there is a justified pronounced government support.

CONCLUSION

The results of the research indicate mutual degrees of knowledge, sources of information, and repercussions between healthcare workers situated in Lipa City and Quezon City. However, significant differences regarding components related to precautionary behavior and risk perception were identified. It was determined that healthcare workers working in Lipa City had higher levels of precautionary behavior and heightened risk perception than those located in Quezon City. The variability between their compliance and perceptions may be attributed to environmental work factors distinctive to their city of employment, implementation of mandated protocols, and level of exposure to COVID-19-afflicted individuals. This knowledge can help healthcare workers, hospital administrators, and local government units reevaluate their current standards and safety protocols and make necessary adjustments in order to increase compliance as well as reduce anxiety experienced by healthcare workers. Increasing compliance to infection control measures and reducing undesirable anxiety caused by elevated perceptions of risk will not only protect our healthcare workers, but also safeguard the lives of the general public. The results of this research also demonstrate the shared struggles of healthcare workers due to the repercussions of the COVID-19 pandemic.

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